

OPHTHALMOLOGY.

VOL. X.

NOVEMBER, 1893.

No. 11.

ORIGINAL ARTICLES.

SOME PHASES OF HYSTERICAL AMBLYOPIA.¹

BY S. C. AYRES, M.D., CINCINNATI.

The numerous and many-sided phases of hysteria are quite familiar to the members of the Academy. You have opportunities of seeing its manifestations in your practice and are constantly on the alert lest you are misled by them. If we may call it a disease, it is one which claims the entire body as its field of operation. It goes roaming around among muscles and nerves and tissues in general, like a will o'-the-wisp skipping from place to place, vanishing without leaving a trace behind it, and reappearing as suddenly again. It is an ignis fatuus which may well claim our most earnest study, as its masked form may stand in our way to mislead us.

Its manifestations are legion. We see it in general convulsions, in limited convulsions, involving only a group of muscles, in an arm or a leg, in the diaphragm, in the respiratory muscles and in the vocal cords. We see it in local anæsthesia and hyperæsthesia, and in the emotions, as laughing, crying, etc.

The special senses of sight and hearing are not exempt from

¹Read before the Academy of Medicine October 30, 1893.

its influence, and it is to a few observations in relation to the former that I wish to call your attention. The patients were all females, but the opposite sex is also subject to hysterical influence.

CASE I.—CONCENTRIC CONTRACTION OF THE VISUAL FIELD.

Mrs. P., æt. 32, a tall delicate looking woman of nervous temperament, came to me first in December 1892 for the removal of an angioma, of the size of a pea, which was located near the inner angle of the left upper lid. The removal of the growth was easily accomplished, and I then examined the refraction. I found her very amblyopic, but was able by means of cross cylinders to bring the vision of the right eye up to 0.5, and the left eye to 0.1. The glasses were very satisfactory and she returned home well pleased with the improvement which they gave her. A month later she wrote me that a few days previously she had so far lost her vision that she was unable to read and it was with difficulty she recognized her friends. When I examined her I found she could count figures at only 2' ($V = \frac{2}{cc}$). I found the visual fields contracted almost to the point of fixation. In a test with two candles when she fixed on one of them and the other was made to approach the one fixed upon, she did not see it until it came in line with the former. The ophthalmoscopic examination was negative. There were no retinal or choroidal alterations to account for her amblyopia. In spite of this, however, she was able to go around with apparent ease. She had suffered from ovarian disease for some time past, had painful menstruation and her health was poor. In the absence of any local manifestation in the fundus oculorum I concluded that the attack was hysterical and depended on some reflex influence. A course of treatment consisting of rest, electricity, massage and tonics, restored her concentrically contracted field of vision as well as her normal acuity of vision. The recovery was slow but satisfactory, and since I saw her last I think her eyes have remained in good condition.

CASE II.—SUDDEN BLINDNESS OF ONE EYE. CENTRAL SCOTOMA.

Mrs. F. *æt.*, 35, has generally enjoyed good health until recently. Her right eye is amblyopic but the left one has vision of 0.9 with compound hyperopic astigmatism corrected. She wears her glasses comfortably and does not suffer from asthenopia. In the early part of the year I changed her glasses and found her vision as good as usual. Shortly after this she called on me in great alarm, saying that she had suddenly lost the sight of her left or good eye. She could not read ordinary print and all things around seemed to be in a haze. A critical examination with the ophthalmoscope did not reveal any pathological lesions in the fundus. Her peripheral vision was good, but the central field was obscured by a cloud and acuity of vision reduced from 0.9 to 0.1. Her nervous condition, disturbed menstruation and the negative result of the ophthalmoscopic examination, decided me in the belief that she was suffering from hysterical amblyopia.

In a short time, under the judicious care of her family physician, the scotoma disappeared and she recovered normal vision again. Her health was not fully reestablished for several months, but at present she is quite herself again.

These two cases, occurring in women of nearly the same age, present conditions, as far as the field of vision is concerned, which were diametrically opposite. In the first one there was a contraction of the field down to the point of fixation. Several tests were made with the perimeter, and all with the same result. As she improved the field gradually enlarged until it became normal.

In the second case the amblyopia involved the central field, but this also disappeared, and when I tested her last her vision was as good as before the attack.

CASE III.—HYSTERICAL AMBLYOPIA. SUDDEN DISAPPEARANCE OF THE SAME WHILE UNDERGOING A REFRACTION TEST.

Miss L., *æt.* 13, school girl, came for consultation in relation

to her eye, saying that several months previously she had practically lost the sight of the right eye. I supposed it to be a case of amblyopia *ex anopsia* and that she had really never seen well with it. She assured me, however, that she formerly saw well with it. I was particularly careful in testing it, but failed to bring her vision above 0.05. Vision of the left eye was perfect. Fundus of both eyes sound. Homatropine was used and the test then made. The left eye revealed a moderate degree of hypermetropia, but with perfect vision, and then I tried the right eye. To my great surprise she read one line after another with the aid of a weak convex glass, the same that suited her left eye, until she read the top line. Her vision rose from 0.05 to 1, and this change took place while she was in my waiting room. What brought it about? Was it the impression made on her mind by her examination and the surroundings of a surgeon's office? Before she came in she feared some operation might be necessary, and this made her dread the visit. But her confidence was soon gained, when she found she had nothing to fear. She enjoyed good health and there was nothing unusual in the menstrual function which had been recently established. She attributed it to study at school, and it is possible that this was indirectly the cause, but it vanished as suddenly as it came.

CASE IV.—HYSTERICAL AMBLYOPIA. SUDDEN DISAPPEARANCE OF THE SAME DURING REFRACTION TEST.

Miss C., æt 16, complains of headache and asthenopic symptom. She cannot study comfortably, and attributes her trouble to her eyes. Her right eye has a vision of 0.9, but her left eye only 0.3. She says that recently her left eye became so imperfect she cannot see well with it. I questioned her very closely in relation to the change in her left eye, as the ophthalmoscope revealed no fundus lesion, for I considered it a case of congenital amblyopia which she had accidentally discovered. It happens not infrequently that cases of congenital amblyopia are discovered while critical examinations

for refraction are being made, and this seemed to be one of them. I repeated my test two or three times, and, finding no glass to improve the vision, concluded it was a case of long standing amblyopia and that she was mistaken in her statement. The homatropine was then used, and the right or good eye was found to have a H. of 1 D. with perfect vision. The left one was then tested, and as in the above case she had a vision of 1 with a weak spherical combined with a weak cylindrical. Her vision increased from 0.3 to 1, the amblyopia disappearing while she was waiting for the final test.

These two cases may be grouped together, as they are similar and as their ages were nearly the same. That the amblyopia should vanish while the refraction test was being made was a strange coincidence, since there was only a short interval between their visits. I feel quite confident that the *force* work which is done in our schools, both public and private, is responsible for such hysterical manifestations as well as for much of the asthenopia.

The dread of periodical examinations, the lack of sufficient out door exercise, and the persistent stimulation of the brain outside of school hours, by lectures and general reading, must tend to disturb the sensitive menstrual function in growing girls. I have seen girls, and boys too, from 13 to 16 who complained of headache from eye strain where all they needed was to be taken out of school. Once free from the surroundings of school, the pain disappeared. Some children grow very rapidly during this period and are not able to study and grow at the same time. All such should be sent to the country, to ride horse back, hunt squirrels, or do some light and agreeable work. This is easy advice to give, but both patient and parents are found who are unwilling to follow it. They are anxious to get through a certain grade, and do not want to fall behind a class. Time seems a more important matter than health, and the children are allowed to go on keeping up with their class even at the risk of health.

About four years ago I had as a client a very studious and ambitious miss of fourteen. Her eyes suddenly gave out and

she could not study. She had an error of refraction which was corrected, but still she could not study. I encouraged her by promising recovery, but could not say when; I could only say it might be in six months or a year or even longer. I advised her to take out of door exercise, to ride horse back, to entertain herself as best she could, but not to study. She did not have hysterical amblyopia, for vision was perfect in both eyes, but she had then asthenopic symptoms, which are associated with the development of menstruation. It was more than a year before she recovered, but the recovery was complete and the rest she had was a great benefit to her physical condition. These asthenopic symptoms sometimes precede the first menstruation for several months and then disappear as soon as the function is established.

CASE V.—HYSTERICAL PHOTOPHOBIA.

Let me mention a case of hysterical photophobia. A young lady had a severe keratitis of the left eye, from which she recovered after a course of treatment lasting two or three weeks. Her recovery was complete and she went home in good condition. A few weeks later she came down, saying that her trouble had returned in full force. The photophobia was intense. It was with difficulty I could see the cornea, as she would scarcely allow any light on it. After much difficulty I inspected the cornea, and found no traces of the former inflammation and no new developments. She suffered from dysmenorrhea, and, presuming the photophobia to be hysterical, I concluded to try a method, which although severe would make a physical and mental impression. I told her I would have to treat her eye in a different manner from what I did before, but assured her she would be well in three days. I then inserted a strong spring speculum between the eyelids and let it open as far as possible. It was very painful but she stood it well, although the tears were streaming down her cheeks. After releasing her I told her the same operation would be repeated the next day. On the following day she

said she was better and yielded with reluctance to the treatment. She complained more of the pain produced by the speculum than she had done the day before. The next morning she walked into my office with the eye wide open and no photophobia, saying that she was well.

These are samples of some of the hysterical manifestations which have recently come under my observation.

Occasionally a person is seen who has hysterical blindness in both eyes, and it is not an assumed blindness. There can be no object in deception in these cases, and the surgeon has to accept the statements of the patients and treat them accordingly. Dr. Harlan, of Philadelphia, reports a case of hysterical blindness of one eye in a young man which lasted ten years and then disappeared while his refraction was being tested. He was very much delighted to get the sight of the eye again.

Dr. Moore, of New York, reports hysterical blindness of one eye in three young men, all of whom recovered promptly under treatment.

The successful management of these hysterical cases requires tact and judgment, as well as judicious general treatment where the uterus and its appendages are involved.

COCAINE POISONING.—REPORT OF CASE, WITH ALARMING SYMPTOMS.¹

BY ALBERT R. BAKER, M.D., CLEVELAND, OHIO.

Mrs. Opterheida, referred to me by Dr. Sihler, of Cleveland, for obstruction of nasal duct and dacryo-cystitis of long standing. Preparatory to slitting the canaliculus, I put into the eyes two drops of a six per cent. solution of cocaine. The cocaine used was in the shape of the soluble tablets for making extemporaneous solutions, prepared by Sharpe and Dohme, of Baltimore, and the solution was prepared and used by myself in the morning of the same day upon a boy about twelve years of age, with strabismus. Although fifteen or twenty drops were used in this case there was no symptom of poisoning. After waiting two or three minutes the canaliculus was slit and three drops injected into the lachrymal sac. I then attempted to pass a lachrymal probe. Patient complained of pain and three more drops were injected, making eight drops in all. Almost instantly the patient complained of feeling queer, commenced talking incoherently, soon became unconscious and commenced having clonic convulsions of all the extremities. Respiration became frequent and sighing. The face was flushed, the pulse became somewhat accelerated and irregular, sometimes 120 to the minute and in a short time running down to 50; but it was at no time very weak. The convulsions lasted for over two hours. Inhalations of ammonia and later on of nitrite of amyl were tried without any apparent benefit. As the patient was unconscious and it was found impossible to

¹Read before the Cleveland Society of Medical Sciences.

compel her to swallow, a hypodermic injection of brandy was given.

As the patient emerged from the unconscious condition she became wildly delirious, requiring the constant services of two or three medical students to prevent injury to herself or others. Her mind was filled with the most extravagant hallucinations, in many respects resembling that produced by poisoning with duboisine or cannabis Indica. At one time she would see many objects on the floor, at another be earnestly sewing and then she would imagine we were trying to do her bodily harm, all the time talking and gesticulating as vehemently as in acute mania. These symptoms continued for about six or eight hours and were so persistent and violent that we did not feel justified in removing her from the office before nine or ten o'clock in the evening. She slept but little during the night, suffered somewhat from headache the following day, but otherwise recovered completely. As soon as she could swallow, aromatic spirits of ammonia were given, also strong coffee and inhalation of ether was tried sparingly to control the violent maniacal symptoms.

It is possible that a more heroic use of this remedy or even a hypodermic injection of morphine might have allayed these very embarrassing symptoms. One of the most persistent hallucinations was that we were delaying her for improper purposes. Although I could not find that there were any erotic symptoms, as one physician thought who happened to call at the office during the height of her delirium. This observation is of interest in connection with the following case.

Dr. C. W. Richardson in the *Journal of the American Medical Association*, 1888, reports a case of cocaine poisoning in which there were some very peculiar symptoms. In a well-developed, well-nourished, married woman, twenty-five years of age, with one child, five drops of a ten per cent. solution of cocaine were injected into the septum of the nose. In a very few minutes the patient, to the disgust, surprise, and consternation of the patient's lady companion, began to manifest the

most remarkable and decided evidence of erotic excitement, both by actions and words.

Although I have used cocaine in very large quantities almost daily ever since it was brought to the notice of the profession, this is the first case in which I have had any very alarming symptoms of poisoning and, consequently, I was very much surprised, to say the least, to have such unusual results from such a small quantity of the drug; not infrequently I have had patients complain of nausea, a cold sweat start from the forehead, the lips become pale and, when cocaine was used in the pharynx or larynx, some temporary interference with respiration; but upon placing the patient in a horizontal position these symptoms have all passed away in a few minutes. I have usually attributed these phenomena more to the effect of fright or the sight of blood than to the cocaine; but in the light of the present experience and my more extended examination of the literature on the subject I am inclined to think that the use of the cocaine had more to do with the production of these symptoms than I had heretofore supposed. In fact I am now led to look upon these symptoms as serious manifestations of poisoning.

I believe that the profession have not reported fully enough their unfortunate experiences with cocaine. In order to bring the matter before you in a somewhat more graphic manner I attempted to collect and tabulate cases of cocaine poisoning, but I soon found this a task of such herculian proportions that I was obliged to abandon it. There have been over four hundred cases of poisoning reported from this drug. I have been able to collect reliable data of only ten cases in which death has resulted as to exact age, dose, symptoms, etc. I have found altogether twenty-one cases of death reported, but in eleven of these the reports were too meager for tabulation. I have no doubt but that many deaths have occurred which have not been reported.

CASE.	AGE AND SEX.	REPORTER.	DOSE.	METHOD OF ADMINISTERING.	SYMPTOMS AND REMARKS.
1	70 F.	Abadie of Paris.	$\frac{1}{4}$ gr.	Hypodermically in eyelid.	Immediate unconsciousness. Partially recovered. Sent home. Died in four hours.
2	29 M.	Anna of Philadelphia. Gaz. de Hospital.	1 drachm 20 per cent.	Injected into ureters.	Epileptiform convulsions. Face cyanotic. Death in twenty minutes.
3	18 F.	Zambrache. Br. Med. Jour.	$3\frac{1}{2}$ gr.	Hypodermic injection.	Epileptiform convulsions. Death in twenty-five minutes.
4	40 F.	Montelli. British Med. Journal.	23 gr.	By the mouth.	Delirium. Lips cyanotic. Unconscious. Died in (one hour) short time.
5	30 M.	London Lancet.	10 gr.	By the mouth.	Opisthotonos, limb spasms. Death in one hour.
6	29 F.	Jour. f. Zeit.	1 gr.	Hypodermic injections into gum.	Collapse. Death in a few minutes.
7	11 F.	Knabe of Berlin	4 drops of 4 per cent sol. $\frac{1}{2}$ gr.	Hypodermic injection into deltoid muscle.	Death in two minutes. Deathly pale. Unconscious. Had weak heart following scarlatina.
8	Young girl.	Lyons Medical.	Small amount	Hypodermic injections into the gums.	Suddenly became faint and fell dead in hands of bystanders. Court exonerated dentist from homicide, but fined him for practicing medicine without license.
9	33 M.	W H. Long. Am. Lancet.	3 percent solution.	Small quantity brushed into the larynx.	Suddenly stopped breathing. Became unconscious. Partially recovered. Again became unconscious. Died in about three hours. Had a similar experience a few days previously, patient only recovering after artificial respiration.
10	25 F.	Prof. Kohn, of St. Petersburg.	96 gr.	Rectal injection. Four injections of 24 grs. each.	Pulse weak. Respiration labored. Face cyanotic. Prof. Kohn suicided.

The following is a case reported to me in private conversation by a reliable medical gentleman who was present at the death of the child has never been reported. Indeed the *London Lancet* in commenting on a case of death in the University College Hospital a couple of years later said that it was the first death from cocaine in England. The case as related to me was that of a girl about twelve years of age in McKenzie's Royal London Throat Clinic, who had a considerable quantity of cocaine sprayed into the post-nasal cavity for the removal of adenoid vegetations. These were removed and the patient was sent to another room; while putting on her wraps preparatory to going home she suddenly became faint, turned pale, a cold sweat appeared, assistance was called and notwithstanding the hypodermic use of stimulants, electricity and artificial respiration the patient died in a few minutes. •

The following reference to published cases of death from cocaine not included in the above tables may be of value to any one wishing to make a more exhaustive study of the subject.

A case reported in the *London Lancet* of October 10, 1891, in which a physician was found dead in a water closet as the result of an overdose of cocaine taken by himself, a short time previously to relieve pain.

A case referred to editorially in the *Medical Press and Circular*.

Ricket reported a case in which death resulted from spraying the throat, with a four per cent. solution, in glossitis.

I find several references to a case reported by Dr. Coleman but failed to find a report of the case in any of the journals to which I have access.

The unfortunate death of Dr. Mendenhall, of Cincinnati, from chronic cocaine poisoning, will no doubt be remembered by all.

In addition to these cases Debose, in the *Journal de Medicine et de Chirurgie Practique*, Paris, reports five cases in which death has resulted from the use of cocaine.

Death resulted in the following ten tabulated cases:

From hypodermic injections, - - - - -	3
From hypodermic injections into the gums, - - - - -	2
From being brushed in larynx, - - - - -	1
From rectal injections, - - - - -	1
From uréthral injections, - - - - -	1
By the mouth, - - - - -	2
	<hr/>
	10

The largest fatal dose was that of twenty-four grains repeated four times in bowels.

The next largest fatal dose was that of twenty-three grains by the mouth.

The next largest fatal dose was that of twenty-two grains of the mouth.

The largest fatal dose by hypodermic injections was that of three and one-half grains.

The smallest fatal dose by hypodermic injections was that of one-third of a grain. (Less than the quantity necessary to kill with morphia).

The next smallest, hypodermically, two-thirds of a grain.

The next smallest, hypodermically, one grain.

Six of the cases died in collapse and four had convulsions.

These observations would teach us that there is a fatal dose of cocaine, that it may cause death in from one-third to three and one-half grains by hypodermic injections, that much larger doses may be taken into the stomach or injected into the urethra or dropped in the eye, but the dose should not exceed five or ten grains. That much smaller amounts should be used in the nose pharynx, larynx or gums. Probably not more than one grain should be used until by repeated trials the tolerance of the patient to larger doses can be assured. Patients who have exhibited the slightest symptoms of poisoning should be watched carefully and the drug used with great caution in the future. The case of Dr. Long is a forcible reminder of the wisdom of taking this precaution.

Notwithstanding all that has been said about the purity of

the drug and the great importance of freshly prepared solutions it should not be forgotten that the drug *per se* has actively poisonous properties and has killed in smaller doses than morphine. The method of administration is of great importance. Hypodermic injections are the most dangerous. Much more so when injected about the head, face or trunk than when injected in the extremities.

When the Esmarch bandage is applied to the extremities and the circulation permitted to return slowly, much larger doses can be given. Corning's method of rubber rings to surround the field of operation on the trunk is an extension of this principle. In making hypodermic injections the needle should be pushed in deeply and gradually withdrawn, and the solutions forced out slowly so that if a vein should be punctured it would be possible for only a small portion to enter the circulation at once.

As to the treatment of cocaine poisoning, I have nothing new to offer. There is no physiological antidote and we must be contented to meet the symptoms as they arise. Probably nitrite of amyl has been used more frequently than any other drug and for the conditions of collapse there is probably nothing better. But in most cases the heart continues to beat long after the respiration has ceased, and it seems to me that the importance of artificial respiration long and persistently employed has scarcely received enough consideration.

In cases of convulsions I should not hesitate to use inhalations of ether cautiously, I have used small doses of morphine hypodermically to control the delirium in mild cases of poisoning with good results. I am not sure but that this remedy might be used with benefit in all cases.

In conclusion I do not wish to be looked upon as an alarmist and I would not upon any consideration advise you to use this most valuable remedy less frequently, in fact I think that it should have a much wider scope and replace general anæsthetics in almost all minor surgical operations and even in some of the major ones.

Only a few days since, I enucleated an eye under the influ-

ence of cocaine for a patient suffering from a serious heart disease, bad kidneys and ascites, to whom it was thought unsafe to administer a general anæsthetic. The patient suffered very little pain and no untoward symptoms were manifest.

Dr. J. B. Matison of Brooklyn, N. Y. has contributed a number of valuable papers to this subject.

CORRESPONDENCE.

Editor AMERICAN JOURNAL OF OPHTHMOLOGY.—In the report of the proceedings of the Ophthalmic Section of the Pan-American Medical Congress on the subject, "Muscular Errors," in the September number of the AMERICAN JOURNAL OF OPHTHALMOLOGY, I am made to say that I had seen the most happy results from "graduated tenotomies." *Complete tendon section* should be substituted for graduated. I have never made a partial section of an eye muscle and therefore have no personal experience in this surgical procedure. Nor had I been favorably impressed with the results of cases seeking my advice after operation of partial sections by other surgeons.

Baltimore, Oct. 13, 1893.

JULIAN J. CHISOLM, M.D.

Editor AMERICAN JOURNAL OF OPHTHALMOLOGY.—Authors of papers read at medical conventions, realizing the difficulties under which reporters sometimes labor, are, I think, content to make allowances for misinterpretations of their views which sometimes appear in the printed reports. When, however, the report is essentially and radically at variance with the author's statements it is due to the readers of the journal that attention should be called to the errors.

The writer of the report of the discussion on heterophoria, at the Pan-American Medical Congress, which appears in your issue for September, has so far misapprehended my remarks as to attribute to me views and practices so widely divergent from the views entertained, or the methods practiced by me, that I trust you will permit me to call attention to at least two statements of the report.

I am reported as saying "that muscular errors could be best detected and treated without correcting the errors of refraction."

As I am now, and have for years been in the daily, I might say hourly, practice, during my ordinary work in my profession, of prescribing lenses for the correction of refractive errors in cases which I am also treating for muscular difficulties, such a statement would not have been consistent with my belief and practice and I did not make the statement.

Your report also credits me with saying "that when a patient enters his (Dr. Stevens') office he immediately recognizes the character of his heterophoria."

While I have devoted a good deal of attention and labor to the study of the relations between heterophoria and facial expressions I have never indulged the hope even of attaining to such a consummate degree of skill in physiognomy as to be able to do what your report credits me with claiming and that is not the idea which was intended to be conveyed in my paper.

New York, Oct. 14, 1893. GEORGE T. STEVENS, M.D.

SELECTIONS.

ASTHENOPIA AND OCULAR HEADACHE.

BY F. R. CROSS, F.R.C.S., ENG., M.B., LOND.,

Ophthalmic Surgeon to the Bristol Royal Infirmary, and Surgeon to the
British Eye Hospital.

The term Asthenopia is applied to eyesight which is easily fatigued, the essential symptom being discomfort in the eyeball, as the result of continuous or even of very moderate eye-work. It is most commonly caused by looking at near objects, especially under faulty artificial illumination; but it is very frequently brought on by gazing continuously at a distance, as in watching a cricket match, or at a theater or picture-gallery. The strain of fatigue often expresses itself outside the eyeball as neuralgia (retro-ocular, supra-orbital, temporal, etc.), and it may cause headache to which the term Ocular Headache has been applied. The headache which is associated with eyestrain is usually located across the forehead, close over the eyebrows. It is frequently one-sided where astigmatism exists in the adjoining eye, and I have then often noticed that it is referred to the anterior portion of the temporal ridge. The pain may be occipital, especially where amblyopia co-exists or there is intra-ocular congestion, but in my experience it is but rarely vortical.

A consideration of this subject is of interest to every practitioner, no less than to the oculist. Any facts which can throw light upon the causation of complaints so common as neuralgia and headache, or which may suggest any plans of treat-

ment likely to help our patients who are suffering from those depressing and obstinate maladies will be a general gain to medical knowledge. On the other hand, it cannot be too widely understood what serious discomforts are being caused by the overpressure of eyes and brain, which seems to be a necessary factor in the education of the present day.

For the purposes of this paper, we may divide ocular neuralgia and headache into two classes:

1. In which the symptom depends mainly upon some nervous peculiarity of the patient.
2. In which the cause lies in the eyeball or in its muscular apparatus.

CLASS I.—It will very rarely occur that the eye and its appendages are absolutely normal, yet a neurasthenic condition of the system may be the essential factor in the case, and judicious constitutional treatment the sole means of cure.

In irritable, hysterical, or hypochondriacal patients, especially in those whose eyes are unduly worked—for instance, pupil-teachers, who study for long hours in addition to their duties, bootmakers, seamstresses, and clerks,—symptoms of heaviness and irritability of the eyes, dazzlings under moderate illumination, and failure of sight, are often complained of.

Some of these cases depend on extreme hyperæsthesia of the retina, or of the ophthalmic division of the fifth nerve, the result possibly of former inflammation in the cornea, of which no record may be seen; some, on weakness of the ciliary muscle.

Where there is unstable equilibrium or undue irritability or tendency to exhaustion of the central nervous system, or of the ocular or orbital nerves, symptoms of asthenopia, fatigue, temporary amblyopia, and contraction of the fields may be readily induced; and these symptoms are specially liable to occur under reflex excitation from the nasal and dental branches of the fifth nerve. They have been attributed as reflex phenomena to abnormal conditions of the uterus and ovaries, and even of the intestines.

Conversely in migraine the symptoms are expressed through

the fifth and other sensory nerve fibres of the meninges, and through the vagi and sympathetic; but these may be the efferent nerve channels in reflex action, of which the primary afferent impulse starts from irritation of nerve filaments in the eyeball.

In patients liable to headache—the tendency to headache existing even under favorable conditions—it may be induced or exaggerated by eyestrain, a proper correction of which may establish the balance in favor of comfort. Dr. G. M. Gould¹ states that of fifteen hundred cases of headache upwards of seventy-five per cent., and of sick headaches ninety-five per cent., were due to eyestrain. This proportion is largely in excess of my own experience, but no one any longer doubts the extreme importance of careful testing and examination of the eyes in headache.

There is, in my opinion, a typical form of asthenopia, of which I have not seen any account, found in young women who do not show any symptoms of hysteria. The eyes easily tire, and tend to flush and feel hot; there is no impairment of the field of vision, and the refractive error varies, but in many cases is scarcely appreciable, whilst its correction makes but little difference to the symptoms. The essential element is a tendency to active hyperæmia of the face and neck, increased by hot rooms, excitement or study, with, on the other hand, coldness of the hands and feet; in these patients, inquiry must be directed to a better balance of the circulation, and its vasomotor nerve control, as well as to the condition of the generative and digestive organs.

I think that severe asthenopia is more common in young boys than in girls of the same age, partly perhaps because their studies are more rigorously enforced.

The following case, which has been under my occasional observation for seven years, shows the trouble that may be caused by the idiosyncrasy of the patient after slight inflammation:

¹Oph. Rev., vol. x, p. 280.

Basil R., seven years old, came on January 4, 1886, with slight internal squint of the left eye. The eye was very amblyopic, 20 J.; the sight in it was not sufficient to avoid obstacles in progression. Hypermetropia not more than 1 D. The right eye was emmetropic and had perfect sight. After a few months' practice with the left eye, its vision improved to $\frac{6}{xii}$ 1 J.; and later it reached $\frac{6}{ix}$, where it has remained ever since. He has always seen better without any glasses, even for reading. He was unable to study severely, but went on well, the squint gradually disappearing, until, in May, 1890, he had a slight attack of ophthalmia, which was soon cured; there was no evidence of implication of the cornea, and no follicular swelling remained. From this time, however, any attempt to use his eyes produced lachrymation and headache. His studies were curtailed, but he could not manage them on account of asthenopia. There was no further impairment of the sight, nor could any form of help by spectacles afford relief; he became very excitable, and walked in his sleep. After a short rest in the country he returned apparently well, but broke down again on resuming moderate work. After a full term's rest, he was able to do his lessons in school, his preparation in the evening being done for him. In the beginning of 1892 he completely broke down again—photophobia, lachrymation, and headache,—although his central and peripheral vision remained perfect. Every chance had been given him by his college masters, but I felt obliged to recommend that he should abandon public school life, and be content with a tutor at the seaside. He appeared for two years to have completely recovered, but has recently had a recurrence of his asthenopia independent of any apparent cause.

There is need of a good school where individual attention could be given to boys with asthenopia, progressive myopia, slight zonular cataract, etc., who should not be allowed to attempt the full curriculum of public school studies. For such scholars the aspect and dimensions of the school windows and the method of artificial illumination should be perfect, the seats

and desks should be carefully applied, and the amount of reading limited.

Many children come to the hospital complaining of eye-ache and defective vision ($\frac{5}{xviii}$ or $\frac{5}{xxiv}$), who completely recover with no other treatment than a few weeks' rest; these are cases of ciliary or retinal fatigue, induced by an amount of school work which the children, from some crisis in development or health, are temporarily unable to master. Other types of asthenopia which depend upon some defective conditions in the general health of the patient might be alluded to.

CLASS II.—The very large majority of the cases of asthenopia depend on faulty conditions in the mechanism of the eye itself, and should be included in a class which comprises errors of refraction and abnormalities of the intrinsic and extrinsic ocular muscles, under the divisions of Accommodative and Muscular Asthenopia.

(A) *Accommodative Asthenopia* is the form which is associated particularly with abnormal conditions of the ciliary muscle and with errors of refraction. This division of the subject is very well understood; so much so, that even some medical men seem to consider that an optician's advice as to spectacles is quite sufficient, and fully capable of assisting to cure their patients. Thus encouragement is being constantly given to a form of counter-prescribing which is not creditable to the doctor, nor beneficial to the patient, nor advantageous to the optician, who would still sell his spectacles, if the doctor himself had prescribed them. Those of us who have the greatest experience in dealing with astigmatism or muscular deficiencies know best how difficult it often is to decide what lenses are the most suitable. In an uncomplicated presbyopia there is perhaps no need for a scientific opinion in the selection of glasses. But the reason why a child's sight is deficient or painful, or that of an adult differs from the normal standard in degree or competence, is a problem for solution by medical knowledge.

Donders wrote of asthenopia as a "peculiar morbid condition of the eyes which has long attracted the attention of oph-

thalmologists. The phenomena of which it is composed are highly characteristic. The eye has a perfectly normal appearance; its movements are undisturbed, the convergence of the visual lines presents no difficulty, the power of vision is usually acute, and nevertheless in reading, writing, and other close work, especially by artificial light, or in a gloomy place, the objects after a short time become indistinct and confused, and a feeling of fatigue and tension come on in, and especially above, the eyes, necessitating a suspension of work."

The emmetropic eye sees at a distance in a state of rest, and its full complement of accommodation is available for closer vision; the hypermetrope, on the other hand, is obliged to tax his accommodation under all conditions where clear vision is required; his focussing muscle is therefore scarcely ever at rest, and when he requires to see more closely only a portion of its normal energy is available. The undue strain may be overcome during youth and health; but as the power of accommodation lessens with age, and particularly under conditions of excessive eyework or of illness or faulty illumination, neuralgia and headache are produced, and the sight fails. It is more than thirty years ago that Donders completely solved the problem of "accommodative asthenopia" and "ciliary strain."² His statement that hypermetropia is usually at the bottom of asthenopia remains unchallenged, if we include hypermetropic astigmatism. Still asthenopia may depend upon any condition of refractive error; and this cause is almost universal, for it is only a very small number of eyes that are perfectly emmetropic.

I think that a very large percentage of cases of astigmatism is associated with neuralgia and headache, and that very small degrees of error in curvature of the cornea often give rise to more discomfort than is found in cases where the astigmatic error is more marked. If this be so, it is of prime importance that astigmatic defects should be accurately neutralized, and

²On the Anomalies of Accommodation and Refraction of the Eye. New Syd. Soc. 1864.

this can only be done by careful objective testing, as by retinoscopy and the ophthalmometer. No doubt a considerable number of asthenopic patients are wearing with relief spectacles that do not properly neutralize the defect from which they are suffering; on the contrary, there are many others who receive no benefit from partial or inaccurate correction, and in all cases it is necessary to adopt a more scientific method than the subjective one by which the optician aids the patient to select lenses for himself.

Conditions of the ciliary muscle require consideration: presbyopia is the simplest form; fatigue or paralysis of accommodation may occur, notably after diphtheria, in eyes that are otherwise healthy. Insufficiency of the ciliary muscles has been described as a congenital defect,³ and it may accompany ill-health, at which time asthenopic neuralgia is not infrequently caused by injudicious reading.

Spasm of accommodation is not very uncommon in overworked children; by its simulation of shortsight, it is a prolific source of deception in the selection of spectacles by subjective testing. The error caused is almost always spherical. Astigmatism from ciliary spasm I believe to be very rare. For the purposes of a paper on "Retinoscopy,"⁴ I examined a large number of eyes by the shadow test and by lenses, both before and after the instillation of atropine; in only a very small number was any change produced in the amount of astigmatic error or by the use of the atropine, while the presence of a latent spherical defect was of course frequently shown.

Accommodative asthenopia is caused by an intra-ocular condition which must be sought for in each separate eye; very common in hypermetropia, it may also be present in low degrees of myopia and in myopic astigmatism. The discomforts of short-sight, however, usually depend upon the strain due to inaccurate performance of the act of binocular vision, as controlled by the extrinsic muscles of the eyeball, and constitute one of the forms of (B) *Muscular Asthenopia*.

³Theobald, Trans. Am. Oph. Soc.

⁴Trans. Intern. Med. Cong., 1887.

The best recognized example of this binocular defect is insufficiency of convergence, for in myopia the required amount of convergence is always relatively greater than that of accommodation; while hypermetropia, on the contrary, calls for more accommodation than convergence: and as hypermetropia induces both ciliary failure and ciliary spasm, so in myopia we find insufficiency of the internal recti usually, but sometimes a state of internal strabismus due to continuous overstimulation of these muscles. Treatment consists in the correction of the relative amplitudes of accommodation and convergence by the use of concave spectacles, with, in some cases, the addition of prisms.

Besides the excess of convergence in hypermetropia and the excess of divergence in myopia, which may culminate respectively in internal and external strabismus, there are all sorts of other faulty tendencies in the ocular muscles, causing neuralgias and eye-aches, which are grouped under the term of muscular asthenopia.

The defects that cause these symptoms may be present in the muscles in their insertions, in the nerves supplying them, or in the central nervous system. The discomfort depends upon the instinctive adherence to binocular vision, and the undue effort necessary under faulty conditions to maintain it. Thus, as Donder's pointed out, if, while both eyes of some hypermetropes are fixing an object, one be shielded by the hand, the covered eye will rapidly deviate inwards, and conversely, by the same method many myopes, who maintain binocular vision, are shown to have a tendency to divergence, which increases with approximation of the object. In squint and diplopia a faulty position of the eyes is sufficiently obvious; and in cases of monocular amblyopia, where the good eye is alone relied upon for sight, the blurred retinal impression from the other is disregarded, the necessity for binocular vision ceases, and the faulty eye wanders according to its muscular balance.

This tendency to deviation may also exist in eyes with good vision, whether emmetropic or aided by spectacles, but here

the effort for binocular vision is usually sufficient to maintain the proper direction of the visual axes, even if muscular asthenopia be thereby induced. If a latent faulty tendency in the muscle balance be suspected, it can be made manifest by rendering one eye amblyopic. For this purpose a strong concave or convex lens, with a stenopæic hole to prevent prismatic action, may be used to blur the image of a lighted candle placed at six metres. A ball of light is seen with one eye, the candle flame with the other; and the relative position of the two as projected by the patient indicates the position of the visual axes. Several methods of reaching the same result have been suggested.

For measuring the statical equilibrium of the eyes, the test must always be made with a distant object—five metres at least,—so that the element of accommodation may be eliminated. For measurements at occupation distance, or for reading, where accommodation and active convergence are called into play, Graefe's test, with the dotted line and vertical prism, has been elaborated by Maddox, who also has given us the glass rod test,⁵ so useful in all forms of latent deviation. Moreover, diplopia can always be induced by the use of prisms, and by their means the power of abduction or adduction, or other movements of a pair of eyes, can be approximately tested. The vertical deviation is weak and usually limited to overcoming a prism of 4° or 2° , whilst abduction overcomes 7° or 8° , and adduction is much more powerful.

George Stevens⁶ has done much by his work and writings to stimulate our inquiries as to "Anomalies of the Ocular Muscles," and has introduced terms which indicate precisely the special tendency or latent deviation in a given case. In *esophoria* and *exophoria* the eye tends respectively to turn in or out, while if the deviation is up or down *hyperphoria* is present.

I am now in the habit of seeking for latent errors in the ex-

⁵Oph. Rev., vol. ix, p. 129.

⁶New York, 1887.

trinsic ocular muscles of many of my patients. Such defects are not very common, but in some cases faulty balance undoubtedly exists, and in such, decentring of the lenses (where ametropia is present) or the use of prisms has relieved the muscular asthenopia.

The value of abducting prisms is well recognized, but I have some half-dozen patients with hyperphoria who wear with comfort vertical prisms. In these cases the essential of treatment lies in orthoptic exercises and the stereoscope. Extravagant statements have been made, particularly by American writers, as to the dependence, not only of asthenopia and headache, but of chorea, epilepsy, and of all kinds of functional nervous diseases upon these ocular defects. It is suggested that cures of the nerve disease in some cases can be brought about by rectifying the defects of equilibrium in the eye by prismatic lenses, by operations on the recti tendons—graduated tenotomies and partial advancements; on the other hand, among the opponents of these enthusiasts (who, to quote Donders' criticism of Bonnet and Pétrequin—1841,—“are too much preoccupied with the idea of tenotomy”) are some who question the entity of muscular asthenopia as distinct from errors of refraction, and entirely deny that ocular derangements can be the cause of nervous disease.

A few cases have been published of epilepsy cured after the use of spectacles. One such case has occurred in my own experience, but I scarcely like to claim the cure as more than a coincidence:

G. R., æt. 21, a very energetic man, six feet three inches in height suffered from attacks of petit mal, accompanied by headache, diplopia, and peculiar yellow vision, usually occurring about dinner-time. He complained of slight crossed diplopia, which was corrected by a prism 1° base in, while a prism 3° base in gave him homonymous diplopia.

R. $\frac{5}{12}$ J 1 — 1 cyl. $> 30^{\circ}$ down in $\frac{5}{8}$.

L. $\frac{5}{VI}$ —.50 cyl. down and in $< 60^{\circ}$ $\frac{5}{8}$.

He was fond of reading, and felt no discomfort from it, but he could write for only a short time. He was ordered the

cylinders mentioned, to be worn constantly, and happens to have had no fit since.

I made no effort to correct his very weak power of adduction and abduction, which might have been due to hyperphoria (of the existence of which I was at that time ignorant). If spectacles were of value in this case, it was by correction only of the astigmatism.

The following case of faulty muscular balance—mainly hyperphoria—well illustrates this defect and the method of its detection:

C. S., a fine, healthy man of 24, has never been able to use binocularly any race or opera glass. To see through them necessitates the closing of one eye; he never uses them.

For two or three years he has at times noticed that the pictures on his bedroom wall are a little doubled when he wakes in the morning. He had not noticed any discomfort from double vision during the day, but has found that he can sometimes voluntarily get a double image. For some months, when tired, he has had slight difficulty in reading; the lines tend to become doubled one above another, and unsteady: this is at once relieved by closing either eye, and his friends have noticed that he has got into the habit of putting his hand involuntarily to his left eye when he is tired of reading.

Vision: R. $\frac{6}{v_1}$ emmetropic.

L. $\frac{6}{v_{III}} + .50$ cyl. $\frac{6}{s}$.

Has been given $+ .50$ readers, which are no help. Asthenopia is at times definite, but never severe.

Testing him with a candle at six metres, with a red glass over one eye, no diplopia could be elicited; but single vision was upset by a prism 9° apex in, or 4° apex out, showing marked weakness both of adduction and abduction. Whereas the movements of the right eye upward, and of the left down, were usually powerful, single vision being maintained with a prism 5° apex up on the right and 4° down on the left, and a prism of 3° in the same positions gave a feeling of relief to the strain felt when the eyes were unaided; on the other hand,

double vision was at once produced by a weak prism 1° apex down over the right, or apex up over the left.

The patient looking at a candle flame at six metres distance with a strong lens and stenopæic opening over the right eye, the blurred image seen was below and to the right of the candle seen naturally with the left eye.

Maddox's rod placed horizontally over the right eye, gives that eye the impression of a vertical line of light (in orthophoria the light line and candle should overlap). In C.S. the streak wandered about 30 cm. to the right, showing that the eye was turning inwards (esophoria). A 5° prism, apex in, corrected the abnormality. When the glass rod is placed vertically, it gives the impression of a horizontal bar of light; thus placed over the right eye, the bar of light deviated to the base of the candle-stick, showing that the eye had wandered upwards; placing the bar over the left eye, the converse obtained—the bar was projected upwards by passive deviation of the eyeball downwards.

The faulty tendency was rather more marked when the right eye was rendered amblyopic than the left; so that while a prism apex down 6° corrected the left, a prism apex up of 8° was required to correct the right.

Although no diplopia could be made manifest without the use of prisms, or by some method by which the vision of one of the eyes was rendered indistinct, the patient at once derived great comfort from placing a 3° or 4° prism apex up over the right eye, and with the same lens read quite comfortably.

The asthenopia has been corrected by spectacles:

R. Prism 2° apex up.

L. + .50 cyl.

A prism of 4° was to be used vertically wrong ways, so as to exaggerate the diplopia and thus stimulate the faulty muscles, and the stereoscope was prescribed for orthoptic exercise.

A recent paper by Dr. H. F. Hansell on "The Prominent

Symptoms of Hyperphoria, as Illustrated by Thirteen Consecutive Cases," indicates the importance of enquiring into the conditions of the muscular equilibrium of the eyeballs. In the cases described all causes of discomfort, at any rate all ocular defects, excepting the muscular anomaly named, are said to have been excluded. The symptoms complained of by the patients were asthenopia, lachrymation, photophobia, headache, in some cases attended by vomiting, vertigo, dizziness, dyspepsia, nervousness; irritability of temper, mental confusion. These varied types of abnormal conditions are said to have been relieved by curing the hyperphoria, either by tenotomy or by the use of prisms.—*Bristol Medico-Chirurgical Journal*.

A SYPHILITIC GUMMA OF UPPER EYELID RESEMBLING A DISLOCATED LACHRYMAL GLAND.¹

BY W. A. FISHER. M.D., CHICAGO.

Miss P., age sixteen, appeared in my clinic, Illinois Charity Eye and Ear Infirmary, September 24, 1892, with interstitial keratitis right eye. Patient has always been healthy except, her mother says, "had scrofula when a baby, lasting until she was six years old," the eruption appearing only on head, face and neck. Father and mother healthy; three children living, youngest three years, oldest eighteen years, all healthy; eight dead,—one typhoid fever, three diphtheria, one pertussis, one pneumonia, one drowned, one miscarriage. No specific history in parents or patient except as mentioned above. Ordered:

R Atropin. Sulph., - - - - gr. ij.
 Aq Dist., - - - - - ʒj.
 M.

¹Read before the Chicago Ophthalmological Society, April, 1893.

Sig.: Gtts. ii. in right eye; t. d. Internally increasing doses of pot. iodide.

Patient gradually improved until October 20, 1892, when she noticed a growth in upper eyelid coming on suddenly and interfering with movements of the eye. On examining the tumor, found it to be freely movable and it could easily be pushed up, "seemingly" into the lachrymal fossa, where it would remain until forcibly closing the eye, when it would reappear in the upper eyelid. It was a most interesting growth and diagnosed as a dislocated lachrymal gland, with a question mark. I then had all the men on duty that day, and a number of visiting doctors examine the eye. Some were quite positive it was a dislocated lachrymal gland; others not venturing an opinion. She was given the benefit of the doubt, growth replaced, put on pressure bandage and continued pot. iodide. The eye became more irritable, the growth making it more irritable than it would otherwise have been. From October 20, 1892, to January 1893, many prominent oculists of this society saw her. I persisted with pot. iodide but thought I had a rare case of dislocated lachrymal gland. Some of my friends were bold enough to say it could not be anything but a dislocated lachrymal gland. While I was treating her she naturally became impatient, not seeing any improvement, and consulted two of our oculists. But when they proposed an operation she timidly returned to me and possibly saved the profession of a report of one more case of dislocated lachrymal gland. At our January meeting I intended showing her to the society and then removing the growth, for at that time it had not decreased any in size, and the patient would be better off without it, no matter what the growth was, for it was producing a great deal of irritation. But she was out of the city at that time and thus saved herself the trouble of an operation. When I saw her again, about four weeks after, the growth was nearly gone. There has been no trace of it now for about a month, and the interstitial keratitis has entirely disappeared. The patient has been very irregular in her attendance at the clinic and for fear she would not be in reach when I wanted her I have had a

good number of the society see her when the growth was at its height and several of you have seen her since it has all disappeared. Patient says she has been taking the medicine according to directions all the time. The old adage being true, "especially of hospital patients," operate them when you have a chance or they will get away. In looking up the literature of dislocated lachrymal gland I find only four reported—one a patient of Jaeger's who had a similar history as this one; patient had interstitial keratitis for four weeks accompanied by protrusion of lachrymal gland, treated for five weeks, no improvement, cut down on tumor, made section and on examination found to be gland, pressed gland in position, put on pressure bandage, and with inflammation caused by the cutting, gland remained in position.

Another, a case of Snell's, was complicated with naevus of forehead and seemed to pass into the orbit. Patient, a hard drinker, during a fit of coughing, dislocated the lachrymal gland. It was replaced with the finger and remained in position. Another, caused by caries of the orbit. Noyes reports one differing from any of the others, it coming on gradually, the patient being nine years old when he saw and removed it. In conclusion will say this growth was a specific gumma, and as gummas in this region are rare this case has seemed to me to be worth reporting. The growth may have come on slowly, she not noticing it at first. She might have taken medicine at first that was inert, or she may not have taken it at all. It at least shows us that growths of this kind should have persistent treatment.—*Jour. Am. Med. Assn.*

REVIEWS.

DIE AUGENAERZTLICHEN OPERATIONEN (THE OPERATIONS ON THE EYE). By VON DR. WILHELM CZERMAK, Wien, Carl Gerold's, Sohn. 1893. Second Part, two marks. Third Part, four marks.

Czermak's work, as far as it is published—the first part has never reached us—is surely a very valuable addition to ophthalmic literature. The numbers received treat exhaustively on all the methods of operating, known or of value, on the lids, conjunctiva and lachrymal apparatus. The reading of these chapters is made especially profitable and enjoyable by the large number of excellent drawings. We await the further numbers with the confidence, that they will be equally enjoyable and useful. The printing is excellent.

A TEXT-BOOK OF OPHTHALMOLOGY. By W. F. NORRIS, A.M., M.D., and CH. A. OLIVER, A.M., M.D. Illustrated with Five Colored Plates and 357 Wood Cuts. Philadelphia: Lea Brothers & Co. 1893. Cloth, \$5.00; Leather, \$6.00.

This exhaustive treatise of six hundred and forty-one pages cannot fail to be largely appreciated. The work has been divided between the two well-known authors in such a manner that the first part, including anatomy, physiology, optics and functional examination have been written by Oliver, while Norris has treated upon the pathology and therapeutics of the eye and its surroundings. The large experience and thorough knowledge of the literature of the authors combined with a great deal of their own personal observation give this book a place among the best on the subject. ALT.